

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) An oxygen-delivery wound treatment device, comprising, a biocompatible, single unit matrix for delivering oxygen, comprising
 - a) a swellable, cross-linked polyacrylamide polymer network, and
 - b) deliverable oxygen in elastic closed cells that are permeable to gas within the cross-linked polyacrylamide polymer network wherein after the polyacrylamide polymer network is cross-linked, the closed cells are formed by oxygen, produced by reacting a catalyst and a second reactant, wherein the catalyst is a carbonate salt and wherein with use of the matrix, oxygen is delivered from the closed cells.
2. (Original) The matrix of Claim 1, further comprising at least one active agent.
3. (Canceled)
4. (Previously Presented) The matrix of Claim 1, wherein the oxygen delivery matrix further comprises a non-gellable polysaccharide.
5. (Canceled)
6. (Previously Presented) The matrix of Claim 1, wherein the second reactant is a peroxide.
- 7-20. (Canceled)
21. (Previously Presented) The matrix of Claim 2, wherein the at least one active agent comprises gases, anti-microbial agents, anti-fungal agents, anti-bacterial agents, anti-viral agents, anti-parasitic agents, mycoplasma treatments, growth factors, proteins,

nucleic acids, angiogenic factors, anesthetics, mucopolysaccharides, metals, pharmaceuticals, chemotherapeutic agents, herbicides, growth inhibitors, wound healing agents, growth promoters, indicators of change in the environment, enzymes, nutrients, vitamins, minerals, carbohydrates, fats, fatty acids, nucleosides, nucleotides, amino acids, sera, antibodies and fragments thereof, lectins, immune, stimulants, immune suppressors, coagulation factors, neurochemicals, cellular receptors, antigens, adjuvants, or radioactive materials.

22. (Canceled)

23. (Previously Presented) The matrix of Claim 21, wherein the anti-microbial agents comprises isoniazid, ethambutol, pyrazinamide, streptomycin, clofazimine, rifabutin, fluoroquinolones, ofloxacin, sparfloxacin, rifampin, azithromycin, clarithromycin, dapson, tetracycline, erythromycin, ciprofloxacin, doxycycline, ampicillin, amphotericin B, ketoconazole, fluconazole, pyrimethamine, sulfadiazine, clindamycin, lincomycin, pentamidine, atovaquone, paromomycin, diclazaril, acyclovir, trifluorouridine, foscarnet, penicillin, gentamicin, ganciclovir, itraconazole, miconazole, Zn-pyrithione, silver salts, chloride, bromide, iodide, or periodate.

24. (Previously Presented) The matrix of Claim 21, wherein the growth factors comprise basic fibroblast growth factor, acidic fibroblast growth factors, nerve growth factor, epidermal growth factor, insulin-like growth factors 1 and 2, platelet derived growth factor, tumor angiogenesis factor, vascular endothelial growth factor, corticotrophin releasing factor, transforming growth factors α and β , interleukin-8, granulocyte-macrophage colony stimulating factor, interleukins, or interferons.

25. (Previously Presented) The matrix of Claim 21, wherein the mucopolysaccharides comprise heparin, heparin sulfate, heparinoids, dermatitin sulfate, pentosan polysulfate, chondroitin sulfate, hyaluronic acid, cellulose, agarose, chitin, dextran, carrageenan, linoleic acid, or allantoin.

26. (Previously Presented) The matrix of Claim 21, wherein the proteins comprise collagen, cross-linked collagen, fibronectin, laminin, elastin, or cross-linked elastin.

27. (Previously Presented) The matrix of Claim 21, wherein the metals comprise zinc or silver.

28. (Previously Presented) The matrix of Claim 1, wherein the matrix comprises a stranded configuration.

29-30. (Canceled)

31. (Previously Presented) The matrix of Claim 1, further comprising a water loss control agent comprising petrolatum, glycolipids, ceramides, free fatty acids, cholesterol, triglycerides, sterylesters, cholesteryl sulfate, linoleic ethyl ester, or silicone oil.

32. (Previously Presented) The matrix of Claim 1, further comprising a plasticizer comprising glycerol, water, propylene glycol, or butanol.

33. (Previously Presented) The matrix of Claim 1, further comprising a hydration control agent comprising isopropyl alcohol, ethanol, glycerol, butanol, or propylene glycol.

34. (Previously Presented) The matrix of Claim 4, wherein the non-gellable polysaccharide is guar gum.

35-37. (Canceled)

38. (Currently Amended) An oxygen delivery wound treatment device, comprising a biocompatible, single unit matrix for delivering oxygen, comprising;

- a) a swellable, cross-linked polyacrylamide polymer network;
- b) deliverable oxygen in elastic closed cells that are permeable to gas and within the cross-linked polyacrylamide polymer network where a second reactant and a catalyst reaction occurred, wherein the catalyst is a carbonate salt, and
- c) at least one active agent.

39. (Currently Amended) A biocompatible, single unit cross-linked polyacrylamide matrix, comprising a swellable, cross-linked polyacrylamide polymer network, and deliverable oxygen in elastic closed cells that are permeable to gas and within the cross-linked polyacrylamide polymer network at sites where a reaction of a catalyst and a second reactant occurred, wherein the catalyst is a carbonate salt.

40. (Previously Presented) The matrix of Claim 38, wherein the oxygen delivery matrix further comprises a non-gellable polysaccharide.

41. (Previously Presented) The matrix of Claim 38, wherein the second reactant is a peroxide.

42. (Canceled)

43. (Previously Presented) The matrix of Claim 38, wherein the at least one active agent comprises gases, anti-microbial agents, anti-fungal agents, anti-bacterial agents, anti-viral agents, anti-parasitic agents, mycoplasma treatments, growth factors, proteins, nucleic acids, angiogenic factors, anesthetics, mucopolysaccharides, metals, pharmaceuticals, chemotherapeutic agents, herbicides, growth inhibitors, wound

healing agents, growth promoters, indicators of change in the environment, enzymes, nutrients, vitamins, minerals, carbohydrates, fats, fatty acids, nucleosides, nucleotides, amino acids, sera, antibodies and fragments thereof, lectins, immune stimulants, immune suppressors, coagulation factors, neurochemicals, cellular receptors, antigens, adjuvants, or radioactive materials.

44. (Canceled)

45. (Previously Presented) The matrix of Claim 43, wherein the anti-microbial agents comprises isoniazid, ethambutol, pyrazinamide, streptomycin, clofazimine, rifabutin, fluoroquinolones, ofloxacin, sparfloxacin, rifampin, azithromycin, clarithromycin, dapsone, tetracycline, erythromycin, ciprofloxacin, doxycycline, ampicillin, amphotericin B, ketoconazole, fluconazole, pyrimethamine, sulfadiazine, clindamycin, lincomycin, pentamidine, atovaquone, paromomycin, diclazaril, acyclovir, trifluorouridine, foscarnet, penicillin, gentamicin, ganciclovir, iatroconazole, miconazole, Zn-pyrithione, silver salts, chloride, bromide, iodide, or periodate.

46. (Previously Presented) The matrix of Claim 43, wherein the growth factors comprise basic fibroblast growth factor, acidic fibroblast growth factor, nerve growth factor, epidermal growth factor, insulin-like growth factors 1 and 2, platelet derived growth factor, tumor angiogenesis factor, vascular endothelial growth factor, corticotrophin releasing factor, transforming growth factors α and β , interleukin-8, granulocyte-macrophage colony stimulating factor, interleukins, or interferons.

47. (Previously Presented) The matrix of Claim 43, wherein the mucopolysaccharides comprise heparin, heparin sulfate, heparinoids, dermatitin sulfate,

pentosan polysulfate, chondroitin sulfate, hyaluronic acid, cellulose, agarose, chitin, dextran, carrageenan, linoleic acid, or allantoin.

48. (Previously Presented) The matrix of Claim 43, wherein the proteins comprise collagen, cross-linked collagen, fibronectin, laminin, elastin, or cross-linked elastin.

49. (Previously Presented) The matrix of Claim 43, wherein the metals comprise zinc or silver.

50. (Previously Presented) The matrix of Claim 38, wherein the matrix comprises a stranded configuration.

51. (Previously Presented) The matrix of Claim 38, further comprising a water loss control agent comprising petrolatum, glycolipids, ceramides, free fatty acids, cholesterol, triglycerides, sterylesters, cholesteryl sulfate, linoleic ethyl ester, or silicone oil.

52. (Previously Presented) The matrix of Claim 38, further comprising a plasticizer comprising glycerol, water, propylene glycol, or butanol.

53. (Previously Presented) The matrix of Claim 38, further comprising a hydration control agent comprising isopropyl alcohol, ethanol, glycerol, butanol, or propylene glycol.

54. (Previously Presented) The matrix of Claim 40, wherein the non-gellable polysaccharide is guar gum.

55. (Canceled)

56. (Previously Presented) The matrix of Claim 39, wherein the oxygen delivery matrix further comprises a non-gellable polysaccharide.

57. (Previously Presented) The matrix of Claim 39, wherein the second reactant is a peroxide.

58. (Canceled)

59. (Currently Amended) The matrix of Claim 72, wherein the ~~at least one~~ reactive active agent comprises gases, anti-microbial agents, anti-fungal agents, anti-bacterial agents, anti-viral agents, anti-parasitic agents, mycoplasma treatments, growth factors, proteins, nucleic acids, angiogenic factors, anesthetics, mucopolysaccharides, metals, pharmaceuticals, chemotherapeutic agents, herbicides, growth inhibitors, wound healing agents, growth promoters, indicators of change in the environment, enzymes, nutrients, vitamins, minerals, carbohydrates, fats, fatty acids, nucleosides, nucleotides, amino acids, sera, antibodies and fragments thereof, lectins, immune stimulants, immune suppressors, coagulation factors, neurochemicals, cellular receptors, antigens, adjuvants, or radioactive materials.

60. (Canceled)

61. (Previously Presented) The matrix of Claim 59, wherein the anti-microbial agents comprises isoniazid, ethambutol, pyrazinamide, streptomycin, clofazimine, rifabutin, fluoroquinolones, ofloxacin, sparfloxacin, rifampin, azithromycin, clarithromycin, dapson, tetracycline, erythromycin, ciprofloxacin, doxycycline, ampicillin, amphotericin B, ketoconazole, fluconazole, pyrimethamine, sulfadiazine, clindamycin, lincomycin, pentamidine, atovaquone, paromomycin, diclazaril, acyclovir, trifluorouridine, foscarnet, penicillin, gentamicin, ganciclovir, iatroconazole, miconazole, Zn-pyrrithione, silver salts, chloride, bromide, iodide, or periodate.

62. (Previously Presented) The matrix of Claim 59, wherein the growth factors comprise basic fibroblast growth factor, acidic fibroblast growth factor, nerve growth factor, epidermal growth factor, insulin-like growth factors 1 and 2, platelet derived growth factor, tumor angiogenesis factor, vascular endothelial growth factor, corticotrophin releasing factor, transforming growth factors α and β , interleukin-8, granulocyte-macrophage colony stimulating factor, interleukins, or interferons.

63. (Previously Presented) The matrix of Claim 59, wherein the mucopolysaccharides comprise heparin, heparin sulfate, heparinoids, dermatitin sulfate, pentosan polysulfate, chondroitin sulfate, hyaluronic acid, cellulose, agarose, chitin, dextran, carrageenan, linoleic acid, or allantoin.

64. (Previously Presented) The matrix of Claim 59, wherein the proteins comprise collagen, cross-linked collagen, fibronectin, laminin, elastin, or cross-linked elastin.

65. (Previously Presented) The matrix of Claim 59, wherein the metals comprise zinc or silver.

66. (Previously Presented) The matrix of Claim 39, wherein the matrix comprises a stranded configuration.

67. (Previously Presented) The matrix of Claim 39, further comprising a water loss control agent comprising petrolatum, glycolipids, ceramides, free fatty acids, cholesterol, triglycerides, sterylesters, cholesteryl sulfate, linoleic ethyl ester, or silicone oil.

68. (Previously Presented) The matrix of Claim 39, further comprising a plasticizer comprising glycerol., water, propylene glycol., or butanol.

69. (Previously Presented) The matrix of Claim 39, further comprising a hydration control agent comprising isopropyl alcohol, ethanol, glycerol, butanol, or propylene glycol.

70. (Previously Presented) The matrix of Claim 56, wherein the non-gellable polysaccharide is guar gum.

71. (Canceled)

72. (Previously Presented) The matrix of Claim 39, further comprising an active agent.